CLEAN VERSION

IN THE CLAIMS:

Please cancel claims 1-50 without prejudice. Such claims are being prosecuted in the parent application.

Please add the following new claims 51-72 as follows:

51. (New) A fluid exchanging apparatus for servicing a vehicular subsystem having a fluid reservoir with a used fluid and an inlet port and an outlet port and a pump for circulating fluid therebetween, said apparatus comprising:

a manifold body defining a first manifold port for coupling to said inlet port, a second manifold port for coupling to said outlet port, a fresh fluid manifold port, a used fluid manifold port, said manifold body further including a pump cavity having a recessed wall defining a first pump port and a second pump port;

a fluid transfer circuit defined within said manifold body placing each of said ports in communication with at least one other of said ports;

a fluid flow rate control device interposed in said fluid transfer circuit and in communication with at least two of said ports, said fluid flow rate control device being selectively operable to direct a fluid between at least two of said ports;

a fresh fluid source coupled to said fresh fluid manifold port;

a pump body having a central drive slot and disposed at least partially within said pump cavity, said pump body being operable to, when driven, circulate a fluid through at least of portion of said fluid transfer circuit and between said first pump port and said second pump port;

a pump motor with a drive shaft releasably engageable with said central drive slot and selectively operable to drive said pump body; and

whereby, upon coupling said first manifold port to said inlet port and said second manifold port to said outlet port, said subsystem pump may be activated and said pump motor may be selectively operated to drive said pump body to direct at least one fluid through at least a portion of said fluid transfer circuit as determined by a selective operation of said fluid flow rate control device.

52. (New) The fluid servicing apparatus as set forth in claim 51 wherein:

said first manifold port is a return port;

said second manifold port is a return port; and

said fluid transfer circuit includes a drain path for directing fluid entering said return port to said used fluid manifold port, a bypass path for directing fluid entering said return port to said exhaust port, a supply path for directing fluid entering said fresh fluid manifold port to said exhaust port, and a dump path for directing fluid entering said used fluid manifold port to said exhaust port.

53. (New) The fluid servicing apparatus as set forth in claim 52 wherein:

said manifold body further includes an auxiliary port for coupling to a power steering fluid reservoir;

said fluid transfer circuit includes power steering fluid drain path for directing fluid entering said auxiliary port to said used fluid manifold port; and

said pump motor is operable to drive said pump body to draw used fluid from said power steering fluid reservoir into said power steering fluid drain path through said auxiliary port.

54. (New) The fluid servicing apparatus as set forth in claim 51 wherein

said fluid flow rate control device is a drain/bypass valve having a valve inlet port in communication with said second manifold port and a valve outlet port in communication with said first manifold port and said used fluid port, said first valve being selectively operable to place said second manifold port in communication with either said first manifold port or said used fluid manifold port.

55. (New) The fluid servicing apparatus as set forth in claim 51 wherein:

said fluid flow rate control device is a supply/dump valve having a valve outlet port in communication with said pump body and a valve inlet port in communication with said used fluid manifold port and said fresh fluid manifold port, said second valve being selectively operable to place said used fluid manifold port or said fresh fluid manifold port in communication with said first manifold port.

56. (New) The fluid servicing apparatus as set forth in claim 51 wherein:

said fluid flow rate control device is a proportional valve having a valve inlet port in communication with second pump port and a valve outlet port in communication with

said second manifold port, said proportional valve being selectively operable to incrementally increase or reduce a fluid flow rate of a fluid passing therethrough.

57. (New) The fluid servicing apparatus as set forth in claim 51 further including:

a used fluid receptacle coupled to said used fluid manifold port;

a first sensor in communication with said fresh fluid source operable to provide a first fluid level signal proportional to a fresh fluid level in said fresh fluid source;

a second sensor in communication with used fluid receptacle operable to provide a second fluid level signal proportional to a used fluid level in said used fluid receptacle; and

a processor coupled to said pump motor, said fluid flow rate control device, and said first and second sensors, said processor being programmed to, upon receipt of said first fluid level signal or said second fluid level signal, actuate said pump motor to control a rate of fluid flow through said fluid transfer circuit.

58. (New) The fluid servicing apparatus as set forth in claim 51 wherein:

said pump body is a vane pump.

59. (New) The fluid servicing apparatus as set forth in claim 51 wherein:

said manifold body includes a main body and an extension defining said pump cavity.

60. (New) The fluid servicing apparatus as set forth in claim 51 wherein:

said pump body includes a keyhole and said drive shaft is constructed with a complementary key shaft releasably engageable with said keyhole to drive said pump body upon energizing said motor.

61. (New) The fluid servicing apparatus as set forth in claim 51 wherein:

said pump motor includes a set of terminals for connection to a vehicle battery.

62. (New) The fluid servicing apparatus as set forth in claim 51 wherein:

said pump motor is secured on said manifold body.

63. (New) The fluid servicing apparatus as set forth in claim 51 wherein:

said pump body is housed entirely in said pump cavity.

64. (New) The fluid servicing apparatus as set forth in claim 51 wherein:

said pump cavity is defined by a circular peripheral wall and includes a collar disposed in said cavity, said collar having a circular outer diameter abutting said peripheral wall and an eccentric inner diameter surrounding said pump body.

65. (New) The fluid servicing apparatus as set forth in claim 51 wherein:

said motor is reversible and operable to rotate said pump body in either circumferential direction.

66. (New) The fluid servicing apparatus as set forth in claim 57 wherein:

said manifold, said used fluid receptacle, said fresh fluid source, and said motor are housed in a wheeled cabinet.

67. (New) The fluid servicing apparatus as set forth in claim 51 wherein:

the pump body is the sole pump in said apparatus.

68. (New) The fluid servicing apparatus as set forth in claim 51 further including:

a drain side filter connected to said manifold body and interposed between said second manifold port and said used fluid manifold port.

69. (New) The fluid servicing apparatus as set forth in claim 51 further including:

a supply side filter connected to said manifold body and interposed between said pump cavity and said first manifold port.

70. (New) The fluid servicing apparatus as set forth in claim 51 further including:

a drain side filter connected to said manifold body and interposed between said second manifold port and said used fluid manifold port; and

a supply side filter connected to said manifold body and interposed between said pump cavity and said first manifold port.

71. (New) A fluid exchanging assembly for exchanging a used fluid in an external reservoir having an inlet port and an outlet port with a fresh fluid source, said assembly comprising:

a used fluid receptacle for collecting said used fluid;

a rectangular manifold body defining a first manifold port for coupling to said inlet port, a second manifold port for coupling to said outlet port, a fresh fluid manifold port coupled to said fresh fluid source, and a used fluid manifold port coupled to said used fluid receptacle;

a pump housing extending from a side of said manifold body with an outwardly facing pump cavity having a recessed wall defining a first pump port and a second pump port, said pump ports opening directly into said cavity;

a fluid transfer circuit defining a plurality of pathways within said manifold body and said housing and placing each of said ports in communication with at least one other of said ports;

a fluid flow rate control device including a drain/bypass valve and a supply/dump valve, each of said valves being interposed in said fluid transfer circuit and in communication with at least three of said ports, said valves being selectively operable to direct a fluid between at least three of said ports;

a vane pump body disposed within said pump cavity and abutting said pump ports, said pump body being operable to, when driven, circulate a fluid through said fluid transfer circuit and between said first pump port and said second pump port in said cavity;

a pump motor mounted on said housing and coupled to said vane pump body, said motor being selectively operable to drive said pump body;

a sensing unit including a first sensor in communication with said fresh fluid source and operable to generate a fresh fluid level signal and a second sensor in communication with said used fluid receptacle and operable to generate a used fluid level signal;

a processor coupled to said pump motor, said valves, and said sensors, said processor being programmed to selectively operate said motor or at least one of said valves based upon said fluid level signals; and

whereby, upon coupling said first manifold port to said inlet port and said second manifold port to said outlet port and activating said motor, said processor selectively operates said motor or at least one of said valves based on said fluid level signals received from said sensors to exchange said used fluid with said supply fluid.

72. (New) A fluid exchanging apparatus for servicing a vehicular subsystem having a fluid reservoir with a used fluid and an inlet port and an outlet port and a pump for circulating fluid therebetween, said apparatus comprising:

a used fluid receptacle for collecting said used fluid;

a fresh fluid source for supplying a fresh fluid to said fluid reservoir;

a manifold body defining a first manifold port for coupling to said inlet port, a second manifold port for coupling to said outlet port, a fresh fluid manifold port coupled to said fresh fluid source, a used fluid manifold port coupled to said used fluid receptacle,

said manifold body further including a pump cavity having a recessed wall defining an outwardly facing first pump port and an outwardly facing second pump port;

fluid transfer means for placing each of said ports in communication with at least one other of said ports;

selectively operable flow diverter means interposed in said fluid transfer circuit for diverting fluid flow between a first of said ports and either of at least two other of said ports;

pumping means for circulating a fluid from at least one port to another of said ports in said fluid transfer means; and

whereby, upon coupling said first manifold port to said inlet port and said second manifold port to said outlet port, said subsystem pump may be activated and said pumping means may be selectively operated to direct at least one of said fluids through said fluid transfer means as determined by a selective operation of said fluid diverter means.